THE SHIN-LIFE CAREER GAME: PURSUING YOUR NEW LIFE STYLE THROUGH GAMING SIMULATION

July, 2021

Authors:
Akinobu Sakata, Takamasa Kikuchi, Ryuichi Okumura, Masaaki Kunigami, Atsushi Yoshikawa, Masayuki Yamamura, Takao Terano

Presenter: Akinobu Sakata
Tokyo Institute of Technology
sakata.a.aa@m.titech.ac.jp
Summary

The purpose of this study is to propose a serious game: the Shin-Life Career Game, which allows players to construct various careers. The name of this game is come from the most famous classic game: the Life Career Game developed by Boocock. In the field of career education, various serious games have been developed as a means for students to learn about career planning and development in a practical way. However, in conventional serious games for career education, the diversity of careers constructed by the players is low compared to the reality of today’s working society. We propose a new serious game: the Shin-Life Career Game which eliminates the restriction on the number of occupations a player is able to take at the same time. We plan to use this game to explore the possibilities of various lifestyles for people.
Background

Gaming and Simulation (GS) [1]

- Gaming and Simulation is a learning method that simplifies complex real-world problems to enable learners to experience the reality of the problems.

- Steps for Learning
  - Briefing → Gaming → Debriefing

- Members
  - Facilitators and Players (Individuals or Teams)

- Outcome
  - Understanding mechanisms of the target problems
  - Acquiring the virtual cases composed of players’ decision-making
Background

Career Education
- Education for students to learn knowledge about career development and career choice.
- The target of education is elementary school to university students.

Application of Gaming Simulation to Career Education
- The Life Career Game [2], The Real Game [3], MeTycoon [4], etc.

Problems with conventional gaming simulations for career education
- Less freedom in labor and occupational choices handled in the game.
  - Multiple occupations, multiple workplaces, multiple employers, etc…
  - Full-time workers, freelancers, part-time workers, gig workers, etc…
Purpose and Approach

Purpose
- Show that players who play the Shin-Life Career Game are affected by the experience of economic depression, just as real workers are.

Approach
- Develop a gaming simulation: the Shin-Life Career Game
- Conduct gaming experiments with the Shin-Life Career Game which has a scenario with an economic depression.
What is the Shin-Life Career Game?

The Life-Career Game [2]

- The world's oldest gaming simulation for career education, developed in the 1960s.
- A type of life game [5] that requires players to solve a resource allocation problem.
- Students from elementary school to university are the target of the game.

What is the Shin-Life Career Game?

- "Shin" is a Japanese word meaning "new".
- The Shin-Life Career Game is a modern update of the original Life Career Game.
- Working in more than one occupation at the same time.
- Various forms of work
Resource variables and activities in the Shin-Life Career Game

### Resource
- **Money resource variable**
  - Resource equivalent to money in the real world
  - It has extensive property and has no upper limit.
- **Ability resource variable**
  - Resource equivalent to the knowledge and skills for the career.
  - It has Intensive property and no upper limit.
- **Time resource variable**
  - Resource corresponding to time spent on real life activities.
  - It has extensive property and an upper bound.

<table>
<thead>
<tr>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Money</td>
<td>Ability</td>
</tr>
<tr>
<td>Money</td>
<td>Simple work</td>
</tr>
<tr>
<td>Ability</td>
<td>Permanent work</td>
</tr>
<tr>
<td>Ability</td>
<td>Freelance work</td>
</tr>
<tr>
<td>Time</td>
<td>Learning</td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
</tbody>
</table>

### Activity
- **Permanent work:**
  - Long-term employment with a particular company and earning regular wages
- **Freelance work:**
  - Operate a business that provides professional services independent of the organization
- **Simple work:**
  - Provides working hours to an organization and earns wages.
- **Learning:**
  - Develop skills voluntarily.
The Shin-Life Career Game

**Resources**
- Money, Ability, Time

**Begin the first turn**

**Check play status**

**I wish I got to be a better business worker**

**Consider policies for resource allocation.**

**How do I allocate my resources to achieve my goal?**

**Labour**
- Permanent work
- Freelance work
- Simple work

**Learning**

**Allocate players’ resources to activities**

**Game system calculates and updates players’ status.**

**Sometimes a depression happens.**

**Final turn?**

**To the next turn**

**Make decision according to my policy.**

**Money, Ability, Time**

**Regular work**
- Ability > 100
- Time > 80%
The Shin-Life Career Game

**Resources**
Money, Ability, Time

Begin the first turn

I wish I got to be a better business worker

Check play status

Consider policies for resource allocation.

Allocate players’ resources to activities

Game system calculates and updates players’ status.

Sometimes a depression happens.

Labour
- Permanent work
- Freelance work
- Simple work

Learning

Money

Ability

Time

Make decision according to my policy

Allocate players’ resources to activities

Retirement

Final turn?

To the next turn

Begin the first turn

How do I allocate my resources to achieve my goal?
The Shin-Life Career Game

**Methods**

**ゲームの手順**

**Resources**
Money, Ability, Time

Begin the first turn

To the next turn

Final turn?

**Check play status**

I wish I got to be a better business worker

**Allocate players’ resources** to activities

**Consider policies for resource allocation.**

**Regular work**
- Ability > 100
- Time > 80%

**Labour**
- Permanent work
- Freelance work
- Simple work

**Learning**

**Make decision according to my policy**

Sometimes a depression happens.

Game system calculates and updates players’ status.

Allocate players’ resources to activities

To the next turn

Final turn?

Retirement
The Shin-Life Career Game

Resources
Money, Ability, Time

Begin the first turn

Check play status
I wish I got to be a better business worker

Consider policies for resource allocation.

Allocate players’ resources to activities

Allocate players’ resources to activities

Game system calculates and updates players’ status.

Sometimes a depression happens.

Make decision according to my policy

Labour
- Permanent work
- Freelance work
- Simple work

Learning

Make decision according to my policy

Sometimes a depression happens.

Regular work
Ability > 100
Time > 80%

Allocate players’ resources to activities

Consider policies for resource allocation.

Labour
- Permanent work
- Freelance work
- Simple work

Learning

Labour
- Permanent work
- Freelance work
- Simple work

Learning
The Shin-Life Career Game

**Resources**
- Money
- Ability
- Time

**Check play status**
I wish I got to be a better business worker

**Allocate players’ resources to activities**
- Regular work
  - Ability > 100
  - Time > 80%

**Consider policies for resource allocation.**

**Labour**
- Permanent work
- Freelance work
- Simple work

**Learning**

**Game system calculates and updates players’ status.**

**Sometimes a depression happens.**

**To the next turn**

**Final turn?**

**Retirement**
The Shin-Life Career Game

**Resources**
- Money, Ability, Time

Begin the first turn

**Check play status**
- I wish I got to be a better business worker

Consider policies for resource allocation.

Allocate players’ resources to activities

- Labour
  - Permanent work
  - Freelance work
  - Simple work

- Learning

Sometimes a depression happens.

Game system calculates and updates players’ status.

Final turn?

Allocate players’ resources to activities

Regular work
- Ability > 100
- Time > 80%

How do I allocate my resources to achieve my goal?

To the next turn
The Shin-Life Career Game

Resources
Money, Ability, Time

Begin the first turn

Check play status
I wish I got to be a better business worker

Consider policies for resource allocation.

Allocate players’ resources to activities

Game system calculates and updates players’ status.

Sometimes a depression happens.

How do I allocate my resources to achieve my goal?

Labour
- Permanent work
- Freelance work
- Simple work

Learning

Make decision according to my policy

Regular work
Ability > 100
Time > 80%

Money

Ability

Time

How do I allocate my resources to achieve my goal?

Labour
- Permanent work
- Freelance work
- Simple work

Learning

Make decision according to my policy

Regular work
Ability > 100
Time > 80%

Money

Ability

Time
Experiment

Participants

- Four types of software agents.

System

- C#
- PC, Windows10 Pro 64bit OS. 16GB RAM

Game Scenario

- A economic depression happens in round 30.
  - Assume the case of a worker who experiences an economic downturn in his or her 50s.
  - The total number of rounds in the game is 40.
### Methods

#### Agent

<table>
<thead>
<tr>
<th>Policy</th>
<th>Time Resource Allocation Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>Stable Income</td>
</tr>
<tr>
<td>A</td>
<td>○</td>
</tr>
<tr>
<td>B</td>
<td>○</td>
</tr>
<tr>
<td>C</td>
<td>○</td>
</tr>
<tr>
<td>D</td>
<td>○</td>
</tr>
</tbody>
</table>

○ means that the agent considers it important in his/her work life.

Rand.は, 各ターン一定量使用できる時間資源のうち, 70〜100%の範囲でランダムに決定する.
Restは, Permanent workに費やされた時間資源を除いた余りの時間資源を指す.
Procedures

Software agents
(Each agent have just one policy)

Gaming
Each agent plays the game independently
for 40 turns per a gaming session.

Playlog
Results

The agent who has the policy of focusing only on stable income are relatively less likely to accumulate money resources.
Results

Regardless of the policy, when agents experience an economic downturn, they uniformly reduce their income significantly.
The ability resources of agents who emphasize ability development continue to increase throughout the game. Therefore, their income from labor also increases continuously.
Impact of economic recession

The following factors may be responsible for the large decrease in income of all agents at the same time as the economic downturn occurred:

- When an economic downturn occurs, the system significantly reduces the time resources allocated to work outside of formal employment.
- The system also reduces the amount of time resources allocated to formal labor to 70% of the total.

In the real world, non-regular workers and freelancers temporarily lost their jobs due to the global financial crisis.
Discussion

Possibility of not earning enough with only a steady income.

- By engaging in additional activities in addition to full-time employment work, agents may be able to increase their income further.
- The possibility of increasing income over the long term through continuous skill development.
- In the case of full-time employment, when workers become older, they are less likely to grow through their work, suggesting that voluntary skill development may be the key to higher earnings in the latter half of workers' lives.
Summary and Future Work

Summary
- Developed the Shin-Life Career Game.
- Four software agents, each with a different resource allocation policy, played gaming in a scenario in which they experienced only one economic recession.
- All agents experienced a large temporary drop in income when they experienced an economic downturn.
- Agents who follow a strategy of engaging only in regular employment work may end up having particularly few money resources.
- Agents with strategies that actively contribute to the growth of their capabilities may continue to accumulate capability resources even in the latter half of the game, and their incomes may continue to rise.

Future Work
- Apply this game to gather knowledge about career choices and career development that modern workers have.
- Feed back the acquired knowledge to the career education of the next generation.
Reference